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09/896,895	06/29/2001	Tao Zhang	S01.12-0787	1539
7590	09/01/2004		EXAMINER	
Alan G. Rego Westman, Champlin & Kelly International Centre, Suite 1600 900 Second Avenue South Minneapolis, MN 55402-3319			SNIEZEK, ANDREW L	
			ART UNIT	PAPER NUMBER
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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 09/896,895

Filing Date: June 29, 2001

Appellant(s): ZHANG ET AL.

MAILED

SEP 01 2004

Technology Center 2600

Alan G. Rego
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 5/26/04.

(1) *Real Party in Interest*

A statement identifying the real party in interest is contained in the brief.

(2) *Related Appeals and Interferences*

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) *Status of Claims*

The statement of the status of the claims contained in the brief is correct.

(4) *Status of Amendments After Final*

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) *Summary of Invention*

The summary of invention contained in the brief is correct.

(6) *Issues*

The appellant's statement of the issues in the brief is correct.

(7) *Grouping of Claims*

Appellant's brief includes a statement that claims 1-4, 9, 11, 12 and 15 (group I) do not stand or fall together with claims 16-20 and 25 (group II) and provides reasons as set forth in 37 CFR 1.192(c)(7) and (c)(8). Claims 1-4, 9, 11, 12 and 15 stand or fall together. Claims 16-20 and 25 stand or fall together.

(8) *ClaimsAppealed*

The copy of the appealed claims contained in the Appendix to the brief is correct.

(9) *Prior Art of Record*

Art Unit: 2651

6,417,982	Ottesen et al.	7-2002
5,155,422	Sidman et al.	10-1992

(10) *Grounds of Rejection*

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1-3, 9, 11, 12, 15-19 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicants admitted prior art (figure 2) in view of Ottesen et al. ('982). This rejection is set forth in a prior Office Action, mailed on 7/2/03 and is reproduced below.

Applicants admitted prior art (figure 2) teaches servo loop for a disk storage system which as discussed in the specification includes a voice coil motor, a servo sensor, a servo controller and a drive signal generator. Also taught is a vibration damping circuit as set forth in claim 1. Claim 1 additionally sets forth a real time adaptive loop shaping circuit that is used to adjust at least one parameter of the transfer function. Although not taught by the admitted prior art is well known as taught by Ottesen et al. elements (120, 122 and 128) to reduce vibrations in signals to drive the actuator. It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate such features in applicant's admitted prior art for the same purpose of reducing vibration in the driving signal. The limitations of claim 2 directed to a notch filter is taught by element (214) of the prior art and also by element (112) of Ottesen et al., which is used for similar purposes. As seen from element (128) of Ottesen et al. gain coefficients are used to adjust notch filter (112). The limitations of claim

9 are satisfied by Ottesen et al. column 9, lines 19-27 and would be combine with the prior art for reasons already stated and would take into account of several frequencies. The limitations of claims 11, 12 and 15 although written in method language set forth no more than that already discussed and is taught by the operation of the combination of references as discussed above. Claim 16 written in means plus function terms and is in view of the specification is determined to be a filter adjusting arrangement. These limitations along with claims 17-19 and 25 are deemed to set forth no more than already discussed with respect to the combination of applicants admitted prior art and Ottesen.

Claims 4 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicant's admitted prior art (figure 2) and Ottesen et al. as applied to claims 1-3, 9, 11, 12, 15-19 and 25 above, and further in view of Sidman et al. This rejection is set forth in a prior Office Action, mailed on 7/2/03 and is reproduced below.

The teachings of applicants admitted prior art and Ottesen et al. are discussed above and incorporated herein. Claims 4 and 20 set forth the use of a band pass filter. Although not taught by applicants admitted prior art of Ottesen et al. is well known as taught by Sidman et al. to be used in similar arrangements for detecting resonance in a storage system. It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate such band pass filters in the arrangement of applicants admitted prior art and Ottesen et al. for similar purposes.

(11) Response to Argument

Concerning Rejection of Group I claims:

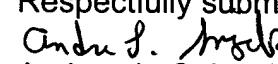
Appellant argues that claims 1 sets forth a “real-time adaptive loop shaping circuit configured to detect vibration energy in a position error signal in real-time, and to responsively adjust, in real-time, at least one parameter of a transfer function of the vibration damping circuit to reduce vibrations at different frequencies.” (Emphasis Added) Appellant argues that it is clear that figure 6A of Ottesen et al. “requires deactivation of all notch filters (step 202) and a reduction of spindle velocity (step 210) for elements 120, 122 and 128 to carry out necessary computations for vibration detection and reduction”, and since a deactivation takes place for the filtering elements, a “real-time” operation does not occur “during normal operation of the disc drive”. Examiner does not agree with this argument. It is noted that the claimed invention does not set forth any limitations directed to “normal operation of the disc drive” as Appellant argued. Also, the deactivation feature, referred to by Appellant, is part of the overall real-time sensing/adjusting operations, which also includes activation. It is clear from figure 6A, 6B that once the initial coefficient values are determined and the notch filter is activated (step 218) subsequent iterations are perform while the notch filters are active. Note line (222) connected between steps (220 and 204), showing that the notch filters are not re-deactivated in step (202). This operation ^{therefore} ~~therefor~~ does operate in a “real-time” manner as claimed. Motivation for combining this feature into that of the Appellants prior art is stated as providing an arrangement that reduces vibrations in signals to drive the actuator.

Independent claim 11 stands or falls with claim 1. Although claim 2 should stand

or fall with claim 1, Appellant argues that Ottesen et al. does not teach the notch filter arrangement that operates in “real-time” and “responsively” manner. Clearly the filter (128) that is adjusted in Ottesen et al. is a notch filter and as previously discussed with respect to claim 1, is adjusted in a “real-time” manner.

Concerning the Rejection of Group II claims:

Appellant indicates that claim 16 is written in a means-plus-function form and that the real-time adaptive loop shaping means for attenuating disturbance in the servo loop includes circuit (302) that then operates with circuit (214) to reduce vibrations at different frequencies. Appellant then argues that elements 120, 122 and 128 do not operate in a “real-time” manner and therefore cannot satisfy the claimed feature. As discussed above with respect to claim 1, Examiner believes that the arrangement taught by Ottesen et al. operates in a “real-time” manner for reducing vibrations as claimed. Although claim 18 should stand or fall with claim 16, Appellant argues that Ottesen et al. does not teach the notch filter arrangement that operates in “real-time” and “responsively” manner. Clearly the filter (128) that is adjusted in Ottesen et al. is a notch filter and as previously discussed with respect to claim 1, is adjusted in a “real-time” manner. For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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Primary Examiner
Art Unit 2651

A.L.S.
August 24, 2004

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